

DOCUMENT RESUME

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[Improvements Needed in Data Management by the Department of Energy]. EMD-78-51; B-178205. March 24, 1978. 9 pp.

Report to Secretary, Department of Energy; by Monte Canfield, Jr., Director, Energy and Minerals Div.

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Congressional Relevance: House Committee on Interstate and Foreign Commerce; Senate Committee on Energy and Natural Resources.

Shortcomings were found in certain data systems used by the Federal Power Commission (FPC) and the Federal Energy Administration (FEA) in managing natural gas and propane supplies during times of shortages. Although the responsibilities of these agencies have been consolidated in the Department of Energy (DOE), their data systems and processing methodology continue to be used by DOE. If DOE continues to rely on essentially the same system used by the FPC and FEA, DOE personnel will continue to have incomplete and dated information as the basis for their fuel supply projections and decisions. DOE managers could draw erroneous conclusions as to the severity of the fuel situation by using such information. This could lead to either costly fuel inventory buildups and the installation of unneeded alternate fuel capability or an unpreparedness for shortages that could result in plant closures and unemployment. To more effectively manage the natural gas and alternate fuel programs and enhance short-term decisionmaking, the data collection system should be improved to provide adequate and timely data on: natural gas deliveries, emergency gas supplies, and underground gas storage on a pipeline or distribution system; the potential economic impact and the volume of gas by end-use priority that is being served in each State, the location of the supplies, the ability of a transportation system to deliver the supplies, and the economic impact of propane shortages. (RFS)



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

ENERGY AND MINERALS
DIVISION

B-178205

March 24, 1978

The Honorable
The Secretary of Energy

Dear Mr. Secretary:

The General Accounting Office found shortcomings in certain data systems used by the Federal Power Commission (FPC) and the Federal Energy Administration (FEA) in managing natural gas and propane supplies during times of shortage. On October 1, 1977, the responsibilities of these two agencies as they relate to natural gas regulation, propane allocation, monitoring activities, and data collection were transferred to the Federal Energy Regulatory Commission, the Economic Regulatory Administration, and the Energy Information Administration--all within the Department of Energy (DOE). The data systems and the processing methodology used before October 1, 1977, however, continue to be used by DOE.

FPC and FEA established a series of data forms through which information on natural gas and propane is obtained. The agencies require suppliers, pipeline companies, distributors, and other participants in the natural gas and propane systems to submit detailed statistics on such items as fuel supplies, storage volumes, inventory levels, deliveries and curtailments, surplus stocks, imports, and production. This statistical data covers both actual and estimated volumes of natural gas, propane, and nonregulated alternative fuels.

We found deficiencies in this data and in the processing procedures used that need to be corrected if DOE is to more effectively manage the natural gas and propane allocation programs and enhance short-term decisionmaking. Some of these problem areas are (1) lengthy processing times which tend to diminish the usefulness of certain data for decision-making purposes, (2) incomplete data submitted to the agencies which can lead to faulty conclusions or require extensive followup efforts to obtain the required data, and (3) the collection of data which serves no useful purpose but which affects processing time adversely.

EMD-78-51
(30836)

We have provided more details concerning these problem areas in the following sections.

USEFULNESS OF DATA ADVERSELY AFFECTED
BY LACK OF TIMELINESS

FEA's failure to collect and process natural gas curtailment and alternate fuel data in a timely manner diminished the ability of both FEA and FPC personnel to assess and respond to fuel shortages. Officials of both agencies stated that fuel managers needed reports of alternative fuel demand resulting from gas curtailments projected for the 1977-78 winter by July 1977 so they could be analyzed before the heating season. The required data processing was not completed, however, until October 1977--nearly 5 months after the data had initially been received and 3 months after it was needed. This delay left little time for the staff to (1) assess the potential impact of gas shortages or (2) complete any remedial actions needed prior to the start of the winter heating season in November.

In July 1977 FPC held special hearings with selected pipeline companies to evaluate the impact of projected natural gas curtailments. The data FEA collected would have been useful for the hearings, but even preliminary summaries were not available to FPC until August. A comparison of the FEA data--when it was finally made available--and the pipeline company information obtained in the hearings raised questions as to the likely impact of further gas curtailments. As a result FPC held additional hearings in October with selected pipeline companies to obtain a broader perspective of the potential impact of expected curtailments. Unfortunately, hearings held this late again left little time to assess the data and initiate actions required to minimize projected economic impacts for the coming winter. Although some preliminary reports were available earlier, the final summaries from these forms were not completed until October 15, 1977.

FEA officials attributed processing delays to several factors. One of the principal forms was changed between reporting periods. A contract data processing firm handling the incoming forms was changed, requiring revised computer programs. The primary factor, however, was the inadequacy of the data returned by the survey respondents. The forms used to collect data on natural gas and alternate fuels were sent to 1,700 companies and municipalities during April 1977.

When the forms were returned to FEA in May 1977, approximately 75 percent required some followup. Generally, either the forms were not completely filled out or the data reported was inconsistent. Before the data could be processed, individual companies had to be contacted to obtain the proper data. In some cases large consumers that had been requested to report refused to provide any data and FEA had to contact their suppliers, asking them for estimates of end-user consumption.

The propane data summaries were also of little use in identifying the availability of propane to help cope with natural gas curtailments. FEA collected monthly data on most aspects of the propane industry, including inventory and storage levels, production, supply and demand, and imports and exports. The reports contained varying combinations of actual volumes for the prior month, current month estimated volumes, and projected volumes for the succeeding month. The data is usually not available for staff analysis and review, however, until 1 to 3 months after it is received. The usefulness of the data at that time is questionable. One FEA official said that certain propane summaries are of no use in projecting areas of propane shortage because of this time lag. Another FEA official told us that the monthly reports submitted by prime suppliers, showing actual and estimated deliveries into a State, were not timely enough for emergency decisions.

The propane data collected would have been useful to FEA officials during critical periods of the 1976-77 winter if it had been more timely. We found that one FEA regional administrator stopped processing all requests for propane for industrial use in January and February 1977, authorizing only enough deliveries to protect industrial plants from cold weather damage. The administrator made the decision because he was not certain that propane supplies in the region were sufficient to serve both industrial and residential consumers. The administrator said it would have been very helpful during the crisis to have known the regional propane inventory levels.

Another regional official said the fuel supply problem was compounded by the lack of detailed data on available supplies of alternate fuels. The regional staff had some contact with propane suppliers during the critical 4- to 6-week period of cold weather from January to February 1977, but this contact was mostly informal.

INCOMPLETE DATA ADVERSELY AFFECTS
FUEL SUPPLY PROJECTIONS

Data submitted to FPC and FEA by industry respondents was found to be incomplete in that all relevant data was not included and, in some cases, appeared to be incorrectly stated. This raises questions about the reliability of such data for use by agency personnel. Much of this data is used to develop projections of fuel availability which are issued to the public in news releases and agency staff analyses.

In addition to the lack of complete data on the forms submitted to FEA by natural gas and propane company respondents and the resultant processing problems, we found that data collected by FPC and FEA to project the quantities of natural gas available for winter delivery by individual pipeline companies and distributors was incomplete. This data did not include all planned purchases of emergency gas and did not identify the gas owned by customers but stored by their suppliers. This reporting methodology tends to understate supply projections for companies that rely on emergency purchases to reduce the impact of curtailments. For example, one interstate pipeline which did not include emergency gas in its supply projections purchased about 45 billion cubic feet of emergency gas last winter--about 40 percent of all emergency gas purchased by all interstate pipeline companies. The company excluded emergency purchases because it could not project volumes for the winter of 1977-78 although some verbal agreements had been made. Another pipeline company did not include emergency purchases because it is acting only as an agent for its distributor and, therefore, the purchases are not included as an increase in pipeline supply.

A related problem concerns the publicly released comparison of projected natural gas deliveries for a forthcoming winter heating season with the past winter period. Actual deliveries for the prior period usually include total volumes, including gas purchased under emergency provisions. Projected deliveries, however, represent only contractual system supply volumes. For the 1977-78 winter period, for example, FPC projected deliveries would be about 170 billion cubic feet less than actual deliveries during the 1976-77 winter. The actual volumes delivered included extensive purchases of emergency gas which either will not be required during the

1977-78 winter or, if they are needed, will probably be available to the interstate gas system. As a result, the projected curtailments caused by reduced deliveries may be considerably overstated and could lead to undue concern over the potential economic impact.

The data submitted on storage report forms is also not adequate to accurately assess the total supply available to a pipeline system because customer-owned gas is not separately reported. Customer-owned gas is, instead, aggregated with gas stored for other companies by responding pipeline companies. As a result, customer-owned gas, which augments a supplier's own system gas, cannot be readily considered when assessing potential curtailment effects. Although the effects would be minimal when assessing total supplies and curtailments, the supply situation for individual systems could be seriously misrepresented when total available gas storage volumes are not clearly identified.

We noted that certain data submitted on monthly reports appears to be incorrectly stated, with companies carrying "estimated" volumes for the current month over to the next month's "actual" column even though they may not actually be the same amounts. We also noted that not all respondents report every month, making trend analyses difficult for specific companies and understating aggregate totals. An agency official told us that although prior compliance problems had been corrected, only about half the companies respond on time. This fact may account for variations in the companies shown on the monthly computer summaries.

DOE NEEDS TO BETTER IDENTIFY
ITS DATA REQUIREMENTS

DOE has not fully evaluated its data requirements and still collects large amounts of natural gas and propane data on a continuing basis. This data collection is being done even though it is questionable whether the data (1) provides the required information, (2) needs to be collected in detail and as frequently as is now required, and (3) is even used.

Information required for short-term decisionmaking in critical supply situations is not generally available from the regular data collection system because either the timing of the reports is not right or the data processing is too slow. The necessary emergency data is obtained by the agencies through monitoring systems which rely on telephone contacts

to obtain current data from companies indicating potential problems during the critical winter season. This system probably provides the best immediate solution to obtaining the timely, specific information needed during such emergency periods. If use of this system is continued, the normal data collection system could possibly be modified to reduce the detail requested on the forms, particularly the projected volumes of fuel.

The agencies have not been able to assess the potential economic impact of shortages from the data submitted on the various forms. The usual procedure to obtain this assessment has been for FPC to schedule hearings for selected pipeline companies that appeared to have potentially troublesome curtailments. During these hearings, an economic impact assessment for the pipeline companies' service areas would be determined. Since the statistical indications of shortages need to be tied to their potential economic impact, we believe it important that such impact assessments be a part of future data requirements.

There is presently no reliable data available from the agencies on the demand for fuel by priority of use, although the forms used jointly by FPC and FEA to collect data on natural gas deliveries and alternate fuel use request this information. Consumers with multiple uses, however, either record only the highest priority of use category, which distorts aggregate totals, or record a zero, which indicates the fuel is used for more than one application but provides no indication as to priority of use. Until respondents comply with the requirement to designate fuel usage by priority, the agencies have no way of summarizing this data into a useful format.

Much of the data collected is tabulated monthly and shows both actual fuel volumes for prior months and estimated volumes expected to be produced or used in the current and/or succeeding months. Data forms are filed at various time intervals--biweekly, monthly, semiannually, and annually--and the data is used for many purposes. Some of the data, for example, is simply aggregated and used for public information. It should not be necessary to collect the detailed data presently required for these aggregated totals. In addition, data used for trend analysis does not have to be as timely as projected data used for identifying possible supply problems. To combine this data on a single form for simultaneous processing appears to be unnecessary. Furthermore, combining data can result in unusable estimates because processing the combined data is too time consuming.

In addition to the other problems noted, FPC is receiving one form that apparently serves no useful purpose. FPC's Form 17 was initiated in 1972 to collect monthly data on natural gas curtailments. The form is filed voluntarily by pipelines curtailing natural gas service to their customers. At the present time about 29 of the 119 interstate pipeline companies report. FPC pointed out the usefulness of the data in providing current information on gas shortages for individual pipeline customers. Since shortages are not reported until as many as 45 days after the fact, we question the usefulness of this data for the stated purpose. FPC officials that would have need of the information told us the data had not really served any useful purpose, and FPC had considered dropping the form. To date no decision has been made on this matter.

CONCLUSIONS AND RECOMMENDATIONS

We believe that DOE needs to develop a better approach to its data collection activities than was used by FPC and FEA. If DOE continues to rely on essentially the same system that was used by these agencies, DOE personnel will continue to have incomplete and dated information as the basis for their fuel supply projections and decisions. DOE managers could draw erroneous conclusions as to the severity of the fuel situation by using such information. This can lead to either costly fuel inventory build-ups and the installation of unneeded alternate fuel capability by industrial consumers or an unpreparedness for shortages that could result in plant closures and unemployment.

With respect to natural gas and propane, DOE has responsibilities in three general areas--regulatory, energy oversight and information, and emergency situations. Each of these areas has specific data requirements in terms of geographic coverage, timeliness, comprehensiveness, and accuracy. These needs should serve as the base criteria for any revision in the data collection system transferred to DOE and for initiating action to collect and process the data into a usable format.

We believe that as DOE reassesses its data collection system, it must consider the needs of its managers, its public information responsibility, its regulatory functions, its processing capability, and the ability of the gas industry to respond in a timely manner to data requests. It should also consider the data problems that were pointed out in a 1976

Arthur Young & Company study ^{1/} on propane data--some of which continue to exist. We also believe that every effort should be made to utilize exception-type reporting, obtaining only the minimum data required for good management. The telephone monitoring system currently being used to keep abreast of winter heating season fuel conditions is a good example of what can be done in this regard. DOE should also carefully consider the trade-offs between the need for detailed data, the ability of respondents to adequately meet the need, and the processing time required to make the information useful. The present data forms need to be examined in terms of their usefulness to management. Unneeded data requirements should be terminated.

To more effectively manage the natural gas and alternate fuel programs and enhance short-term decisionmaking, we recommend that the data collection system be improved so that it will provide adequate and timely data on:

- Natural gas deliveries, emergency gas supplies, and underground gas storage on a pipeline or distribution system. As a minimum DOE should (1) insure that actual and projected gas deliveries are as complete as possible, (2) provide valid comparisons of natural gas deliveries of past and future periods, and (3) revise the gas storage forms to accurately reflect storage balances available to each individual pipeline for meeting peak demands.
- The potential economic impact, including the number and location of small and large consumers that may have to close their plants, and the volume of gas by end-use priority that is being served in each State.
- Propane demand and supplies, the location of the supplies, the ability of a transportation system to deliver the supplies, and the economic impact of propane shortages.

We also recommend that all current data forms be reviewed to eliminate all unnecessary data elements, including entire forms if appropriate.

^{1/}"Feasibility Analysis For The Consolidation of FEA Forms 100A, 103B, and FEO 1000, Draft Final Report," Arthur Young & Company, November 12, 1976.

We informally discussed the general contents of this letter with DOE personnel. They said that DOE is presently attempting to (1) examine the data systems in use by agencies incorporated into DOE and (2) identify what types of information are needed. Their other comments were considered and incorporated into the report as deemed appropriate.

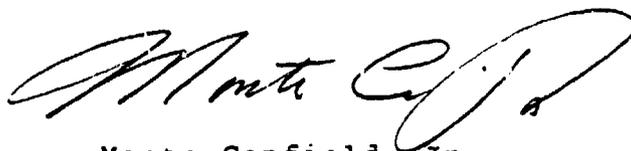
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We appreciate the cooperation received during this assessment and would appreciate being informed of actions planned on our recommendations. We would be glad to discuss this report with you or your staff.

Copies of this report are being sent to the Senate Committee on Governmental Affairs; the House Committee on Government Operations; the House Committee on Appropriations; the Senate Subcommittee on Public Works, Committee on Appropriations; and other interested Members of Congress.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

Sincerely yours,



Monte Canfield, Jr.
Director